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# ANNUAL REPORT - 1966

WATER RESOURCES  
COMMISSION





The Commonwealth of Massachusetts  
State Office Building  
Government Center  
100 Cambridge Street, Boston 02202 \*

ANNUAL REPORT  
to the  
MASSACHUSETTS WATER RESOURCES COMMISSION  
by the  
DIRECTOR AND CHIEF ENGINEER  
for the  
FISCAL YEAR ENDING JUNE 30, 1966

INTRODUCTION

The Division of Water Resources is the operating agency of the Water Resources Commission, established by Chapter 620 of the Acts of 1956. A permanent office and staff for this Division was established on January 1, 1959, so this report includes operations for the seventh complete fiscal year.

As would be expected, the activities have greatly expanded. The program can be divided into the following seven categories:

- I Coordination of Water Resources Activities of State, Interstate and Federal agencies as they affect Massachusetts.
- II Providing Guidance in Formation of Water Resource Policy and Laws.
- III Collection of Basic Data.
- IV Management of Water Usage.
- V Planning and Implementing Regional or River Basin Water Resource Development.
- VI Research.
- VII Dissemination of Information.

\* On February 7, 1966, the Commission moved from its offices at 15 School Street, Boston to its present location in the new State Office Building in the Government Center.

Memorandum for the President  
and the Vice President  
of the United States

Subject: [Illegible]  
Reference: [Illegible]  
Date: [Illegible]

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## ADMINISTRATION

### Membership of Commission

The membership of the Commission as of July 1, 1965, consisted of the Commissioners, or their designees, of six State Departments, and three Governor appointees as follows:

#### Members by Virtue of State Offices Held

| <u>Title</u>                             |   | <u>Name of Commissioner or Designated Representative</u>                                      |
|--|---|---|
| Commissioner of Natural Resources        | - | Charles H. W. Foster, Chairman  |
| Commissioner of Agriculture              | - | Charles H. McNamara or Myron A. Maiewski, Asst. Commissioner                                  |
| Commissioner of Commerce and Development | - | Theodore W. Schulenberg or<br>* Regis J. Harrington, Acting Director, Bureau of Area Planning |
| Metropolitan District Commissioner       | - | Howard Whitmore or Harold J. Toole, Chief Engineer of Water Division                          |
| Commissioner of Public Health            | - | Dr. Alfred L. Frechette or Worthen H. Taylor, Chief Sanitary Engineer                         |
| Commissioner of Public Works             | - | Francis W. Sargent or John T. Hannon, Chief Waterways Engineer                                |

#### Appointed Members

Peter C. Karalekas of Springfield  
James W. Reilly of Ware  
Thomas J. Rouner of Westmoreland, New Hampshire

\* On March 16, 1966, Mr. Regis J. Harrington was appointed to replace Mr. Louis H. Smith as designee from the Department of Commerce and Development



### Meetings

Seven of the twelve regular monthly meetings of the Commission, as well as Special Meetings on September 7 and October 27, 1965, and April 20, and May 24, 1966 were held in the Commission's office at 15 School Street, Boston, and five of the twelve regular monthly meetings were held in the new State Office Building, Government Center, 100 Cambridge Street, Boston. In addition, there were two conferences held, one at the Lakeville Hospital in Middleboro on September 28, 1965, to review and discuss with the local officials the provisions of House Bill No. 4049, a report of the Commission relative to the water resources of Bristol and Plymouth Counties; and the second on February 9, 1966, at the Bradley Palmer State Park to discuss, again with local officials, long-range plans for the development of the Ipswich River Basin.

### Staff

The staff of the Water Resources Commission consisted of the following persons during the year:

|                              |   |                     |
|------------------------------|---|---------------------|
| Director and Chief Engineer  | - | Malcolm E. Graf     |
| Associate Civil Engineer     | - | Donald F. Kirby     |
| Senior Civil Engineer        | - | Charles F. Kennedy  |
| Senior Engineering Draftsman | - | William M. Everberg |
| Principal Clerk              | - | Rosemary M. Noonan  |
| Senior Statistical Clerk     | - | Beverly E. Brown    |
| Senior Clerk & Stenographer  | - | Isabel F. Moors     |
| Junior Clerk-Typist          | - | Linda Bragman       |

In addition, the services of Nicholas Barth as Resources Consultant to the Commission were utilized until May, 1966, at which time he filled the newly created position of Resources Planner.

### Appropriations

The following table shows a comparison of the appropriations for the operation of the Commission:

| <u>Fiscal Year</u> | <u>Appropriation</u> | <u>Amount of Original Request</u> |
|--------------------|----------------------|-----------------------------------|
| 1959               | \$ 70,800.           | \$122,150.                        |
| 1960               | \$ 75,915.           | \$140,000.                        |
| 1961               | \$ 79,475.           | \$200,432.                        |
| 1962               | \$ 88,920.           | \$234,757.                        |
| 1963               | \$117,402.           | \$155,461.                        |
| 1964               | \$129,649.           | \$171,915.                        |
| 1965               | \$139,181.           | \$187,332.                        |
| 1966               | \$140,573.           | \$197,811.                        |





In addition, the following sums were appropriated for the operation of the three Interstate Flood Control Commissions:

|  |   |             |
|--|---|-------------|
| Thames River Valley<br>Flood Control Commission      | - | \$ 450.00   |
| Connecticut River Valley<br>Flood Control Commission | - | \$38,168.00 |
| Merrimack River Valley<br>Flood Control Commission   | - | \$80,647.00 |

These funds were used for the payment of the Commonwealth's share of operating the respective Flood Control Commissions, and the annual tax and economic losses to the up-river states caused by the construction of flood control reservoirs.





Last Year's Recommendations and What Happened to Them

Recommendation #1 - That funds and staff be made available to properly carry out the Commission's Activities.

Results: During the last quarter of the year three new temporary Civil Service positions were authorized for the Commission, namely a Junior Clerk Typist, Senior Civil Engineer and a Resources Planner. Adequate funds were appropriated for these positions. However, with the lateness of this personnel authorization and the temporary classifications only the Resources Planner position was filled.

Recommendation #2 - That the Commission be authorized and funded to undertake a complete inventory of the sources of groundwater in the Commonwealth in cooperation with the U. S. Geological Survey and such groups of communities that may be able to jointly petition the Commission for studies under Chapter 643, Acts of 1964.

Results: An appropriation of \$100,000 was made under a special studies account. This appropriation was based on a request for matching funds for work under Chapter 643 of the Acts of 1964 for ground water studies and matching funds with the University of Massachusetts Water Resources Research Center. Insofar as no local funds were appropriated for work under Chapter 643 of the Acts of 1964, \$17,672 was allotted to work on ground water investigations by the U. S. Geological Survey in addition to the \$49,000 appropriation for other cooperative work.

Recommendation #3 - That the Commission be authorized and funded to undertake a complete inventory of possible reservoir sites in cooperation with the U. S. Soil Conservation Service.

Results: Governor Volpe submitted a special message and legislation to authorize a \$5,000 ten-year bond issue to undertake an inventory of possible reservoir sites, a state wide inventory of ground water resources, additional



Geologic mapping, funds to match federal grants for water resources planning under the Water Resources Planning Act of 1965 and matching funds with the University of Massachusetts Water Resources Research Center. The proposed legislation was printed as House Document #3733 for the year 1966. This bill received a favorable Committee Report, but failed to be enacted.

Recommendation #4 - That matching funds be provided for cooperative research at the University of Massachusetts Water Resources Research Center.

Results: Although funds were available as indicated in the results of Recommendation #2, the Water Resources Research Center was not in a position to receive matching funds. Also these funds were not forthcoming until late in the fiscal year. Thus no monies were given to the Center during the year.

Professor Bernard B. Berger was engaged as the Director of the Water Resources Research Center officially occupying the position on April 1, 1966. It is expected that the Commission will be able to undertake water resources research during Fiscal Year 1967.

Recommendation #5 - That matching funds for staff and consultants be provided for the program established by the Water Resources Planning Act (Title III) (U.S. Public Law 89-80).

Results: Due to the failure of the passage of House #3733 referred to in the result of Recommendation #3 and the lack of necessary administration machinery at the federal level to implement Title III of the Water Resources Planning Act no projects were undertaken. However, work was begun in developing guidelines for this program.

Recommendation #6 - That funds be provided to augment the program of the Department of Public Works in their cooperative program with the U. S. Geological Survey for bedrock and surficial geology mapping.

Results: This program did not get started because of the failure of House No. 3733 which would have appropriated the necessary funds.





## Recommendations

The activities of the Commission continued to be hampered by the lack of sufficient appropriations and staff to carry out the many additional responsibilities that are being given to the Water Resources Commission each year.

It is recommended:

- (1) That additional funds and increased staff be made available to carry out the Commission's activities.
- (2) That the Commission actively support legislation similar to House No. 3733 of 1966 to provide a complete inventory of water resources and plans for optimum development of the same, with the necessary staff to carry this out.
- (3) That adequate staff and consulting funds be provided to properly investigate matters relating to Chapter 220 of the Acts of 1965 which are being referred to this Commission.
- (4) That the Commission explore the advisability of a license law to cover borings contractors for additional ground water data.

### I Coordination of Water Resource Activities of State, Interstate and Federal Agencies as they Effect Massachusetts.

#### Interstate Agencies

The Chairman of the Commission serves as one of the Massachusetts representatives on the New England Interstate Water Pollution Control Commission and was the representative from Massachusetts on the Northeastern Resources Committee which holds regular meetings for coordinating the water resource activities of the six New England States and seven Federal agencies.





The Director serves as a Commissioner on two Interstate Flood Control Commission, namely, the Connecticut River Valley Flood Control Commission and the Thames River Valley Flood Control Commission.

#### Federal Agencies

Corps of Engineers, Department of the Army. This Commission is designated as the responsible agency to represent the Commonwealth of Massachusetts on problems of flood control. In addition, it reviews all of the projects of the Corps of Engineers, advising on the action that the Commonwealth should take. In this regard, numerous conferences were held with the Corps of Engineers, although no official action was required on the part of the Commission during the period covered by this report.

#### Soil Conservation Service, U. S. Department of Agriculture.

Under the enabling act creating the Water Resources Commission, the Commission is the State agency responsible for cooperating with the Soil Conservation Service in the small watershed program under Public Law 566. The following actions were taken by the Commission in this regard:

1. Approved the Application for planning assistance under Public Law 566 for the Green River Watershed in Williamstown, Massachusetts. This watershed consists of 27,315 acres in Berkshire County and is a tributary to the Hoosic River which flows westerly into the Hudson River. Approximately 2 per cent of the total watershed area is located in Rensselaer County, New York.
2. The Commission approved and authorized the Director and Chief Engineer to sign the supplement to the Broad Brook Watershed Work Plan. The supplement would delete the basic recreational facilities from the so-called White Site, would increase the height of the dike along the pumping station upstream from the so-called Summit Site, and would make the Water Resources Commission a co-sponsor of the project.
3. The Commission approved and authorized the Director and Chief Engineer to sign the supplement to the Upper Quaboag River Watershed Work Plan which would reduce the recreational storage from 250 acre feet to 70 acre feet and the area of the recreational pool



from 61 acres to 46 acres on the Rice Site; would reduce the Commonwealth's share in the construction cost of the Rice Site; and would make the Commission a co-sponsor of the project.

4. The Commission authorized the Director and Chief Engineer to enter into Operation and Maintenance Agreements on the Rice and Sucker Sites as a part of the Upper Quaboag River Watershed Project.
5. The status of the construction of reservoirs under this program is shown under Section V of this report.

As a result of an agreement signed between the Commission and the Soil Conservation Service a report was submitted by the Service relative to possible reservoir storage sites for the Ipswich River Watershed Area and was included as Appendix D of House Document No. 4100 of 1965, a Report by the Commission relative to the public water supply resources of the Ipswich River.

Also as a result of an agreement with the Soil Conservation Service a study has been made and a report prepared relative to possible water storage sites in the Upper Hoosic River and Upper Housatonic River areas.

Department of Commerce. Cooperation is maintained with the Weather Bureau in the Department of Commerce, in the exchange of rainfall data. (see Section III).

Department of the Interior. The Commission works closely with the U. S. Geological Survey in carrying on cooperative projects for securing basic data on ground water resources and surface water stream flow. The Commission made \$74,000 available on a matching fund basis to finance this work. (see Section III).

Department of Health, Education and Welfare. Basic data is exchanged on water quality and quantities periodically.

### State Agencies

The Commission kept in contact with the appropriate State agencies to secure their advice and comments prior to formulating policy or approving Federal projects.







## II. Providing Guidance in formation of Water Resources Policy and Laws

The General Court of Massachusetts was still in session at the end of the fiscal year. All of the legislation affecting the Water Resources Commission had not been enacted, including the 1967 fiscal year General and Supplementary Budgets.

### Legislation Directly Affecting the Water Resources Commission

The following acts and resolves directly affecting the Water Resources Commission were passed during the Fiscal Year covered by this report:

#### Acts of 1965

Chapter 704 - An Act Authorizing the Water Resources Commission to construct a water retention area for flood control purposes and other purposes in Pine Tree Brook Watershed in Milton.

Chapter 815 - An Act Authorizing the Water Resources Commission to construct additional reservoirs in the SuAsCo area.

#### Resolves of 1965

Chapter 116 - Providing for an Investigation and Study by the Water Resources Commission re Water Resources in Braintree and Randolph and surrounding areas.

Chapter 122 - Continuing investigation and study by the Water Resources Commission of the public water supply resources of Ipswich River.

The following legislation which, if passed, would directly affect the activities of the Water Resources Commission was pending legislative consideration and approval at the time of writing this report.

Senate No. 106/1966 - A resolve continuing investigation and study by the Water Resources Commission re water resources in Braintree, Randolph and surrounding area.

Senate No. 973/1966 - Authorizing the Water Resources Commission to permit construction of Dam and Reservoir by private interests in Blackberry River Watershed.



House No. 337 /1966 - Authorizing this Commission to undertake certain diversions of streams into Great Pond for the protection of the Towns of Avon, Braintree, Holbrook and Randolph as a flood control measure.

House No. 771/1966 - Authorizing the Water Resources Commission to construct flood control works in Diamond Brook Watershed in Walpole.

House No. 1115 - Establishes Ipswich River Watershed District.

House No. 3733 - A special message submitted by the Governor which would authorize a 10-year program of water resources planning for the Commonwealth.

House No. 3807 - Continuing investigation & study by the Water Resources Commission re Water Supply of Berkshire County region.

House No. 3893 - Authorizing Water Resources Commission to establish encroachment lines and flood plain zones in Sudbury, Concord & Shawsheen Rivers and their tributaries.

#### Federal Legislation

Senate No. 4 - Water Quality Act of 1965. This bill amends the Federal Water Pollution Control Act to provide grants for research and development, to increase grants for construction of sewage treatment works to establish water quality criteria, and for other purposes. (P.L. 89-234)

Senate No. 1229 - Federal Water Project Recreation Act. This bill would provide uniform policies with respect to recreation and fish and wildlife benefits and costs of Federal multiple purpose water resources projects and for other purposes. (P.L. 89-72)





### III Collection of Basic Data

#### Rainfall

The Commission continues to operate a system of 116 rainfall stations. The rainfall data collected from these stations is exchanged with the U. S. Weather Bureau for data on the stations which they operate. Thus, the Commonwealth has an active network of 143 rain gages in operation at the present time. We also have two automatic rain gages in operation, one in Springfield and one in Maynard.

The annual rainfall for the various sections of the State for the Calendar Year 1965, as shown by representative long-term stations, is as follows:

Rainfall in Inches -- 1965

|           | State | Northeast<br>Section | Southeast<br>Section | Central<br>Section | Conn. River<br>Section | Western<br>Section |
|-----------|-------|----------------------|----------------------|--------------------|------------------------|--------------------|
| January   | 2.67  | 2.65                 | 2.89                 | 2.27               | 2.30                   | 2.92               |
| February  | 2.91  | 3.38                 | 2.33                 | 3.39               | 2.83                   | 2.38               |
| March     | 1.75  | 2.01                 | 1.77                 | 2.10               | 1.89                   | 1.59               |
| April     | 2.62  | 2.78                 | 2.75                 | 2.93               | 2.35                   | 2.39               |
| May       | 1.60  | 1.76                 | 1.11                 | 1.50               | 1.48                   | 1.73               |
| June      | 2.62  | 3.52                 | 2.64                 | 3.47               | 2.44                   | 2.59               |
| July      | 2.18  | 1.35                 | 0.73                 | 1.49               | 3.49                   | 3.63               |
| August    | 3.31  | 2.12                 | 2.36                 | 2.87               | 4.06                   | 4.91               |
| September | 2.85  | 2.33                 | 2.15                 | 2.38               | 3.30                   | 3.63               |
| October   | 2.26  | 2.11                 | 2.40                 | 3.14               | 2.84                   | 2.17               |
| November  | 2.58  | 2.28                 | 2.05                 | 2.55               | 2.56                   | 2.84               |
| December  | 2.13  | 2.00                 | 1.50                 | 2.01               | 2.33                   | 2.86               |
| YEAR      | 29.48 | 28.29                | 24.76                | 30.10              | 31.87                  | 33.64              |
| NORMAL    | 43.68 | 42.43                | 44.44                | 44.03              | 43.96                  | 43.82              |



Rainfall Excess or Deficiency (in Inches) - 1965

|            | State  | Northeast<br>Section | Southeast<br>Section | Central<br>Section | Conn.River<br>Section | Western<br>Section |
|------------|--------|----------------------|----------------------|--------------------|-----------------------|--------------------|
| January    | -0.94  | -1.02                | -0.75                | -1.55              | -1.08                 | -0.32              |
| February   | -0.42  | -0.02                | -1.37                | -0.18              | -0.24                 | -0.53              |
| March      | -2.06  | -1.80                | -2.48                | -1.92              | -1.76                 | -1.88              |
| April      | -1.02  | -0.85                | -1.32                | -0.90              | -1.21                 | -1.26              |
| May        | -1.94  | -1.51                | -1.98                | -1.91              | -2.35                 | -1.89              |
| June       | -0.82  | +0.25                | -0.68                | -0.15              | -1.38                 | -1.38              |
| July       | -1.54  | -2.15                | -2.28                | -2.02              | -0.61                 | -0.79              |
| August     | -0.75  | -1.58                | -1.36                | -0.70              | +0.11                 | +0.81              |
| September  | -0.73  | -1.22                | -1.44                | -1.36              | -0.56                 | -0.43              |
| October    | -1.21  | -1.20                | -1.46                | -0.13              | -0.61                 | -1.08              |
| November   | -1.31  | -1.51                | -2.07                | -1.45              | -1.31                 | -0.99              |
| December   | -1.46  | -1.53                | -2.22                | -1.74              | -1.09                 | -1.44              |
| Excess     | + 0.00 | +0.25                | + 0.00               | + 0.00             | + 0.11                | + 0.81             |
| Deficiency | -14.20 | -14.39               | -19.41               | -14.01             | -12.20                | -10.99             |
| Total      | -14.20 | -14.14               | -19.41               | -14.01             | -12.09                | -10.18             |

Stream Flow

There are a total of 68 stream gaging stations in the Commonwealth being operated by the U. S. Geological Survey, 27 of which are in cooperation with this Commission, 16 of which are with the M.D.C. and 25 of which are with the Department of Public Works. All of the results are published annually in the U. S. Geological Survey Water Supply Papers.

The Commission also continued to cooperate with the U. S. Geological Survey in obtaining base flow measurements for small drainage areas on a number of tributaries throughout the Commonwealth. These base flow measurements are being made in each basin over at least a three-year period and constitute a vital element in water resource planning.

Ground Water Data

Under the cooperative agreement with the Ground Water Branch of the U. S. Geological Survey studies were continued in the Ten-Mile-North Taunton River Basins. A ground water favorability map of this basin is in the process of being prepared and will be available shortly upon request.





The ground water favorability study of the Housatonic River Basin in Massachusetts was completed under a cooperative agreement with the U. S. Geological Survey and a map showing the results thereof is now available upon request. Additional information on the hydrologic characteristics of the Housatonic River Basin will also be made available probably in atlas form.

#### Registration of Well Drillers

Chapter 513 of the Acts of 1962 requires that any person, corporation, company, or partnership engaged in the business of digging or drilling wells in the Commonwealth, shall obtain a Certificate of Registration from the Water Resources Commission before July 1st of each year. During Fiscal Year 1966, 155 so-called well drillers throughout the Commonwealth were registered with the Commission. Also any out-of-state drillers who do any drilling in the Commonwealth were also registered. Chapter 513 further requires that all registered drillers shall submit a report to the Commission setting forth pertinent information on all wells drilled. This information is kept on file in the office of the Commission and is made available for public use and has proved valuable in determining the ground water resources of the Commonwealth.



#### IV Management of Water Usage

##### Yield of Muschopauge Pond

Under the provisions of Chapter 414 of the Acts of 1958, the towns of Rutland and Holden report monthly the water level in Muschopauge Pond and the quantity of water which was taken from that pond for domestic water supply purposes. In the event that the water level of the pond goes five feet below the spillway elevation, the Commission must determine the amount of water that each town can take from the pond.

As a result of a request from the Town of Rutland that the Commission restrict Holden's withdrawal of water to conserve the greatly reduced pond in order that sufficient water would be available for the 1966 summer season, on February 17, 1966, a letter was sent to the Town of Holden limiting them to 140,000 gallons per day; during previous weeks they had been drawing 200,000 gallons per day from this source. Restriction remained in effect at end of this report period.

##### Walden Pond

The County Commissioners of Middlesex County continued to cooperate with the Commission in submitting to this office periodic records as to the elevation of Walden Pond in Concord.

##### Flood Control - Sudbury River

The Commission continued to coordinate the operation of the reservoirs of the Water Division of the Metropolitan District Commission and the Department of Natural Resources located on the Sudbury River. The reservoirs are operated so that during the recreational season 1,500 million gallons and during the remainder of the year 2,600 million gallons of storage capacity are kept available for the storage of flood flows in order to reduce flood hazards along the river.

#### V Planning and Implementing Regional or River Basin Water Resource Development

##### Status of Special Studies

##### Berkshire County Water Resources Study

A progress report filed with the 1966 Legislature resulted in an extension of the time within which the Commission must complete





this study and file its final report, now due the fourth Wednesday of December, 1966. The work is being done in cooperation with certain federal, state and private engineering agencies.

#### Assabet River Valley Water Resources Study

According to last year's annual report progress on this study had been hampered due to a lack of funds, although limited work had continued in the area particularly as it relates to low flow equalization in the river to satisfy the increasing demands being placed upon this stream.

#### Connecticut River Comprehensive Water Resources and related land resources

This study is being continued with a target date of 1969 for completion. The work is being managed by the U. S. Corps of Engineers, New England Division, with various Federal agencies cooperating. Multi-purpose reservoir site studies are being conducted by the Corps of Engineers on large watershed and on small watersheds by the U. S. Soil Conservation Service. A basic inventory of groundwater potential has been completed by the U. S. Geological Survey, Water Resources Branch.

As the Chairman of the Commission or his designee is a member of the Coordinations Committee on this study Massachusetts has been represented at all executive meetings and public hearings are held each year within the basin.

The Commonwealth, during the next Fiscal Year, will undertake seismic work in the Connecticut River to further define ground water potential in the main valley.

#### Northfield Mountain Pumped Storage Project

The Commission considered the matter of the proposal of Western Mass. Electric Company to construct a pumped storage hydroelectric plant at Northfield Mountain in the towns of Northfield and Erving. This plant would produce approximately one million kilowatts of peak load power by pumping Connecticut river water out of the Turners Falls pool to a reservoir to be constructed on the top of Northfield Mountain. The pumping would take place during the time of low power loads and would be returned to the Connecticut river during peak load hours through reversable pump turbines.

During the companies investigation of the feasibility of the project it was found that the pumping equipment would be idle





for about 1-4 hours per day during the off peak period and found that if the upper reservoir was raised 4 feet additional water could be pumped to the mountain top reservoir during about 70 days in the spring of each year in sufficient quantity to provide 72 million gallons per day per year to the Quabbin Reservoir about 10 miles distant and about 475 feet lower in elevation. The Commission voted unanimously to endorse the project.

### Status of the Commission's Construction Program

#### Soil Conservation Service Projects

##### SuAsCo Reservoir A-1 in Westboro

Land surveys continued for the acquisition of the necessary lands for this reservoir, which, in addition to flood control, will provide low flow regulating water and fish and wildlife benefits.

##### SuAsCo A-6f in Berlin

Construction of this reservoir was completed to the satisfaction of the Commission and the U. S. Soil Conservation Service on August 30, 1965, at a total cost of \$33,713.39. The Contractor was Arthur H. Hebert & Son, Inc. of Monterey.

##### SuAsCo Reservoir A-6f in Berlin -- Seeding Contract

Capnera Construction Company, Inc. of Boylston, on November 8, 1965, completed to the satisfaction of the Commission and the U. S. Soil Conservation Service vegetation work at this reservoir at a cost of \$4,730.00.

##### Powdermill Brook Watershed - Powdermill Site

This reservoir was completed to the satisfaction of the Commission and the U. S. Soil Conservation Service on August 24, 1965, by Arthur H. Hebert & Son, Inc. of Monterey at a total cost of \$131,481.83.

##### Powdermill Brook Watershed - Arm Brook Site

The Arm Brook Reservoir was completed by C. W. Lauman and Company, Inc. of Long Island, New York, at a total cost of \$10,154.35 to the satisfaction of the Commission and the U. S. Soil Conservation Service on September 21, 1965.

##### Quaboag River Watershed Project - Horse Pond and Kittredge Sites

Under date of August 31, 1965, the contractor, Welch & Corr Construction Company, Inc. of West Springfield completed work on the





Horse Pond Site, at a total cost of \$143,647.71 and on July 28, 1965, completed construction of the Kittredge Site at a total cost of \$60,897.16, both to the satisfaction of the Commission and the U. S. Soil Conservation Service.

Quaboag River Watershed Project - Tile Drainage Work at Horse Pond Site

On November 18, 1965, work performed on the Tile Drainage system at the Horse Pond Site was completed by the Contractor, A. M. Williamson & Son, Inc., of Rochdale at a total cost of \$3,218.60 to the satisfaction of the Commission and the U. S. Soil Conservation Service.

Quaboag River Watershed Project - Horse Pond and Kittredge Seeding.

Caprera Construction Company, Inc. of Boylston on November 26, 1965, completed to the satisfaction of the Commission and the U. S. Soil Conservation Service vegetation work at the Horse Pond and Kittredge Sites at a total cost of \$29,880.00.

Quaboag River Watershed Project - Lamberton Site

On December 7, 1965, a contract was awarded to Vincent J. DiGregorio of Worcester for the construction of the Lamberton Reservoir as a part of the Quaboag River Watershed Project for a bid price of \$40,859.60. At the time of writing this report the work was only 5% completed.

Clam River Watershed Project - West Lake and Abbey Sites

On September 10, 1965, Arthur H. Hebert & Son, Inc. of Monterey was awarded a contract for the construction of the West Lake and Abbey flood retarding structures within the Clam River Watershed in the Town of Sandisfield at a bid price of \$92,263.60 for the West Lake Site and \$67,429.20 for the Abbey Site. At the time of writing this report the work on the West Lake Site was 71 per cent completed and work on the Abbey Site was 31 per cent completed. It is anticipated that both of these reservoirs will be completed within the coming Fiscal Year.

Project Agreements Entered into between the Commission and the Soil Conservation Service

During the fiscal year covered by this report the Commission was authorized to enter into project agreements with the U. S. Soil Conservation Service for the construction of a drainage system at the emergency spillway at the Horse Pond Site, Quaboag River Watershed Project, at an estimated cost of \$10,000; for an additional relief well at the Arm Brook Site, Powdermill Watershed Project in the City of Westfield.



## Status of Corps of Engineers Projects

### New Bedford-Fairhaven Hurricane Barrier

At the time of writing this report actual construction work for the New Bedford-Fairhaven Hurricane Barrier had been completed. It is anticipated that the Commission, in accordance with existing agreements, will accept this project insofar as maintenance and operation are concerned within the next fiscal year.

### Chicopee Falls Local Flood Protection

Construction on this project was completed by the Corps of Engineers on July 11, 1965.

### Westfield River Local Flood Protection Project

Work on this project was deferred during the fiscal year covering this report due to a failure on the part of the City of Westfield to enter into an agreement with the Commission for the construction and maintenance of the project.

### Three Rivers Local Flood Construction Project

Work on this project was just about completed during the fiscal year covered by this report although completion of the contract was not formally accepted at the time of this writing.

## VI Research

Discussions were held with the Director of the Water Resources Research Center of the University of Massachusetts relative to establishing research projects on water problems at the Center. Agreement was reached on one project namely a sophisticated evaporation study at Quabbin Reservoir. This was not finished for the current fiscal year.





## VII Dissemination of Information

### Waterwise

Although the Commission was unable to publish WATERWISE during the fiscal year covered by this report due to the lack of funds and insufficient staff to carry on this activity with our presently heavy work load, definite steps have been taken towards the publication of this newsletter on a regular basis beginning early in the coming fiscal year.

### Exhibits

As has been the case in the past, the Commission's staff continued to assist in the preparation of exhibits which have been utilized at various conservation and resources meetings. For example, an exhibit showing the activities of the Commission in the collection of basic data on water resources was prepared for display on the second floor of the State Office Building during dedication ceremonies. Staff of the Commission also made significant contributions in the preparation of an exhibit depicting the activities of the Department of Natural Resources. This exhibit was prepared for a national meeting of the Isaac Walton League held in Boston.

### Meetings

The Commission continued to be represented at various meetings of local conservation groups and the Director attended numerous meetings of the two Interstate Flood Control Commissions and as previously stated on the various meetings on the Connecticut River Watershed Comprehensive study. Numerous meetings were held with local officials regarding additional water supply developments.

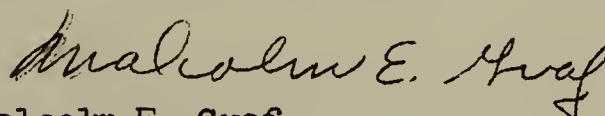


ACKNOWLEDGEMENTS

Again, the Director would like to express his thanks to the members of the Commission representing the various State Departments for their continued assistance and for making the resources of their Departments available to this office in carrying out its responsibilities.

He would also like to thank the staff of the Commission for their assistance in the preparation of this report, and express his gratitude to the Division of Fisheries and Game, as well as the many Federal agencies and voluntary and professional groups, for their continued assistance.

Respectfully submitted,

A handwritten signature in cursive script, reading "Malcolm E. Graf". The signature is written in dark ink and is positioned above the printed name and title.

Malcolm E. Graf  
Director and Chief Engineer









